REMARKS

In the present Amendment, claims 14 and 20-23 have been cancelled without prejudice or disclaimer. Claim 15 has been amended to incorporate the subject matter of claim 19. Claim 19 has been cancelled. In addition, claims 15 and 18 have been amended to clarify the claim language. No new matter has been added, and entry of the Amendment is respectfully requested.

Upon entry of the Amendment, Claims 15-18 will be pending.

Claims 15 and 19 were objected to because, per the Examiner, a. in claim 15, line 8, "the nitrogen source at 700 to 950°C" should read -- the nitrogen source at 700°C to 950°C--, and b. in claim 19, line 2, "the reduction is 0.001 to 10%" should read -- the reduction is 0.001% to 10%--, to clarify the claim language.

Claims 15 and 18 [and 19] were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

The Examiner considered that there is insufficient antecedent basis for the limitation "the flow rate" in lines 6-7 of claim 15, the limitation "the carrier gas employed during growth" in lines 1-2 of claim 18 and the limitation "the flow rate" in line 1 of claim 19.

The claims have been amended as suggested by the Examiner (with respect to the objection), and claims 15 and 18 have been amended to employ the indefinite article "a" in introducing the flow rate of nitrogen and carrier gas. It is respectfully submitted that the claims as amended fully comply with 35 U.S.C. § 112, and withdrawal of the foregoing objection and rejection is respectfully requested.

Claims 15-18 were rejected under 35 U.S.C. § 102(e) as being anticipated by Kobayakawa (U.S. 2007/0090369).

As noted, claim 15 has been amended to incorporate the subject matter of claim 19. Claim 19 is not subject to this rejection. Accordingly, withdrawal of the § 102(e) rejection of claims 15-18 based on Kobayakawa is respectfully requested.

Claims 15 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugiura et al (U.S. 6,015,979, "Sugiura") in view of Nidou et al (JP 09-199758, "Nidou").

This rejection should be withdrawn because Sugiura and Nidou do not disclose or render obvious the present invention, either alone or in combination.

Sugiura was cited as disclosing a production method of semiconductor device in which after the temperature of the substrate has reached 1100 °C, the carrier gas is changed from nitrogen over to hydrogen, and a p-type AlGaN current injection layer **40** and a p-type GaN contact layer **41** are formed. After growth of the p-type GaN contact layer **41**, the feed of the metallo-organic material is stopped, only the nitrogen carrier gas and ammonia (at a flow rate of 9.5 L/min) are continuously fed, and the temperature of the substrate is naturally lowered. However, the feed of ammonia is stopped when the temperature of the substrate has reached 350 °C (col. 13, lines 32-50).

The Examiner acknowledged that Sugiura fails to teach a method where the temperature for stopping the supply of nitrogen source is at 700°C to 950°C.

Nidou was cited as disclosing a method, where the temperature for stopping the supply of nitrogen source is at 700°C to 950°C (abstract and [0029]).

The Examiner gave the limitation that "the flow rate of the nitrogen source after the reduction is 0.001 to 10% with respect to the flow rate of the total volume of gas" in claim 19 no patentable weight, because, per the Examiner, Applicant has not disclosed that the range

of the impurity concentration is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical.

Applicants respectfully traverse.

First, present Claim 15 recites that "immediately after the completion of the growth, starting, at a temperature at which the growth has been completed, supply of a carrier gas composed of an inert gas and *reduction of a flow rate of a nitrogen source*."

However, in Sugiura, the flow rate of the nitrogen source (ammonia) is not reduced immediately after the completion of the growth, nor during lowering of the temperature (col. 13, lines 3-4, 23 and 46-47).

Second, Sugiura expressly teaches that the feed of ammonia is stopped when the temperature of the substrate has reached 350 °C (col. 13, lines 49-50), which is outside the scope of "stopping supply of the nitrogen source at 700°C to 950°C in the course of lowering temperature" required by present claim 15.

The Examiner stated that one skilled in the art would have been motivated to modify Sugiura, as suggested by Nidou, by stopping the supply of nitrogen source at 700 to 950°C in course of lowering the temperature because doing so would prevent hydrogen gas from diffusing out from the crystal surface, thereby obtaining a low resistance p-type layer ([0030] of Nidou).

However, Nidou discloses that since atmosphere gas is only nitrogen at the time of substrate crystal cooling at 700°C or less, hydrogen is not spread from the crystal surface([0030]). In other words, Nidou does not disclose the advantages of stopping the supply of the nitrogen source at 700 to 950°C.

Accordingly, there is no reason or motivation for one skilled in the art to modify Sugiura based on the teachings of Sugiura and Nidou.

With respect to the limitation that "the flow rate of the nitrogen source after the reduction is 0.001 to 10% with respect to the flow rate of the total volume of gas" recited in previous claim 19 (now incorporated into claim 15), Applicants disclose at page 12, lines 11-26 of the specification:

> Simultaneously when the carrier gas is changed, the flow rate of the nitrogen source is reduced, which is a key issue. The flow rate of the nitrogen source during growth is generally 20% to 70% with respect to the flow rate of the total volume of gas. After reduction of the flow rate, the flow rate is preferably 10% or less with respect to the flow rate of the total volume of gas, more preferably 1% or less. When the amount of the nitrogen source is excessively high, device operation voltage cannot be lowered as intended. However, if the flow of the nitrogen source is stopped (i.e., controlled to 0), nitrogen is released from the p-type layer crystal, thereby lowering Vr of produced devices. The flow rate of the nitrogen source is preferably controlled to 0.001% or higher with respect to the flow rate of the total volume of gas, more preferably 0.01% or higher.

Neither Sugiura nor Nidou teaches or suggests the advantageous effects provided by the present invention.

Accordingly, claims 15 and 19 (now incorporated into claim 15) are not obvious over Sugiura in view of Nidou. Reconsideration and withdrawal of the §103(a) rejection based on Sugiura in view of Nidou are respectfully requested.

Allowance of claims 15-18 is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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